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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

BROWN, COURTNEY A

ART UNIT

PAPER NUMBER

1616

MAIL DATE

DELIVERY MODE

06/24/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/522,948	Applicant(s) DI ET AL.	
	Examiner COURTNEY BROWN	Art Unit 1616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 February 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 36-55 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 36-55 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>4/26/2006 and 2/25/2008</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Receipt of Amendments/Remarks filed on February 25, 2008 is acknowledged.
Claims 1-35 and 56-58 stand cancelled. Claims 36-55 are pending and are being examined for patentability.

Priority

Priority to International Application PCT/NZ03/00169 filed on August 2, 2002 is acknowledged.

Information Disclosure Statement

The Information Disclosure Statements (IDS) submitted on April 26, 2006 and February 25, 2008 have been considered by the examiner.

Claim Rejections - 35 USC § 103

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 36-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sutton et al. (US 4,994,100), Naohiko et al. (Japanese Journal of Soil Science, 2001, volume 72, number 2, pages 206-213), and Cookson et al. (Soil Biology and Biochemistry 34, 2002, pages 1461-1465) in view of Smutek et al., (US Patent 4,560,796).

Applicant's Invention

Applicant claims a method for soil management in pasture farming systems, comprising applying a nitrification inhibitor, dicyandiamide (DCD), in solution form, fine particle suspension, or crystalline form to treat an entire area of grazed pasture soils, to reduce at least one of : (1) $\text{NO}_3\text{-N}$ leaching; (2) nitrous oxide emission; and (3) potassium, calcium or magnesium leaching, whereby pasture production in both animal urine patch areas and non-urine patch areas is increased. Applicant claims the aforementioned method wherein the nitrification inhibitor is applied multiple times (5 times in a spring and an autumn yearly application) in conjunction with either irrigation water by spray vehicle, or by conventional methods. Additionally, Applicant claims the aforementioned method wherein urea is applied at $200 \text{ kg N ha}^{-1}\text{y}$ throughout the pasture and the pasture is grazed by 3 cows per ha., wherein DCD is applied to the whole area of the grazed pasture soil.

***Determination of the scope and the content of the prior art
(MPEP 2141.01)***

Sutton et al. teach an aqueous nitrogen fertilizer consisting of urea and dicyandiamide with features to minimize nitrogen loss in field crop (abstract, claims 36, 41, and 48 of instant application). Sutton et al. teach that the said nitrogen fertilizer is granular and is applied to a field by means of a drop spreader or a broadcast spreader (column 4, lines 14-17, and claims 36, 37, and 42, fine particle of instant application). Additionally, Sutton et al. teach that dicyandiamide functions in the fertilizer as a slow release source of nitrogen (column 5, lines 7-12, claims 36 and 41 of instant application).

Cookson et al. teach that nitrification inhibitors such as dicyandiamide offer potential for decreased losses through denitrification and leaching by delaying the microbial transformation of ammonium-N to NO_3^- (page 1461). Cookson et al. additionally teach, in an experiment, the application of DCD, along with urine and water to a pasture in the time period of February to March with 4 replicated treatments (page 1461, claims 43, 51, and 52 of instant application).

Naohiko teach the addition of DCD to cow's urine before application onto a grassland (abstract). Additionally, Naohiko teach that, as a result of the DCD + urine application, nitrous oxide generation was inhibited by 66-40% (abstract, claims 36, 41, and 48 of instant application).

***Ascertainment of the difference between the prior art and the claims
(MPEP 2141.02)***

The difference between the invention of the instant application and that of Sutton et al., Cookson et al., and Naohiko is that the instant invention requires application of DCD in crystalline form. For this reason, the teaching of Smutek et al. is joined. Smutek et al. teach that dicyandiamide tends to cake when handling (column 1, lines 17-20). Smutek et al. also teach a process for the modification of the crystal form of dicyandiamide wherein it can be readily handled and measured (column 1, lines 31-47, claim 44 of instant application).

Finding of prima facie obviousness

Rationale and Motivation (MPEP 2142-2143)

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of the cited references to arrive at a method for soil management in pasture farming systems, comprising applying a nitrification inhibitor, dicyandiamide (DCD). One would be motivated to make this combination in order to receive the expected benefit of a method for soil management in pasture farming systems comprising the use of a nitrification inhibitor, dicyandiamide that is easy to handle and measure.

In reference to claims 38-40,45-47,49,50, and 53-55, a composition that consists of the same components (i.e. DCD and urine) will possess the same properties and therefore lead to identical ,desired results.

Additionally, it is routine optimization for one of ordinary skill in the art to adjust the application rate and time (i.e., 5 times in the spring and in autumn, and after the application of urea at 200 kg N ha⁻¹y to a pasture that is grazed by 3 cows per ha.) to optimize the desired results.

Conclusion

None of the claims are allowed.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR Only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry concerning this communication or earlier communications from the

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examiner should be directed to Examiner Courtney Brown, whose telephone number is 571-270-3284. The examiner can normally be reached on Monday-Friday from 8 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's Supervisor, Johann Richter can be reached on 571-272-0646. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Courtney A. Brown
Patent Examiner
Technology Center 1600
Group Art Unit 1616

**/Johann R. Richter/
Supervisory Patent Examiner, Art Unit 1616**